MITSUBISHI ELECTRIC

Changes for the Better

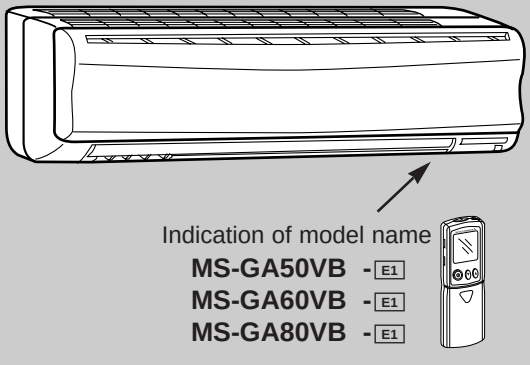
SPLIT-TYPE, AIR CONDITIONERS

No. OB369

SERVICE MANUAL

Wireless type Models

MS-GA50VB - E1 (WH)
MS-GA60VB - E1 (WH)
MS-GA80VB - E1 (WH)



CONTENTS

1. TECHNICAL CHANGES ·····2
2. PART NAMES AND FUNCTIONS·····2
3. SPECIFICATION·····4
4. NOISE CRITERIA CURVES·····5
5. OUTLINES AND DIMENSIONS ·····6
6. WIRING DIAGRAM ·····7
7. REFRIGERANT SYSTEM DIAGRAM·····8
8. SERVICE FUNCTIONS ·····9
9. TROUBLESHOOTING·····11
10. DISASSEMBLY INSTRUCTIONS·····19
11. PARTS LIST·····21
12. OPTIONAL PARTS·····23

NOTE:
This service manual describes technical data of the indoor units.
As for outdoor units MU-GA50VB -E1, MU-GA60VB -E1 and MU-GA80VB -E1, refer to service manual OB370.

CE

1 TECHNICAL CHANGES

MS-A18WV -E1 → MS-GA50VB -E1

MS-A24WV -E1 → MS-GA60VB -E1

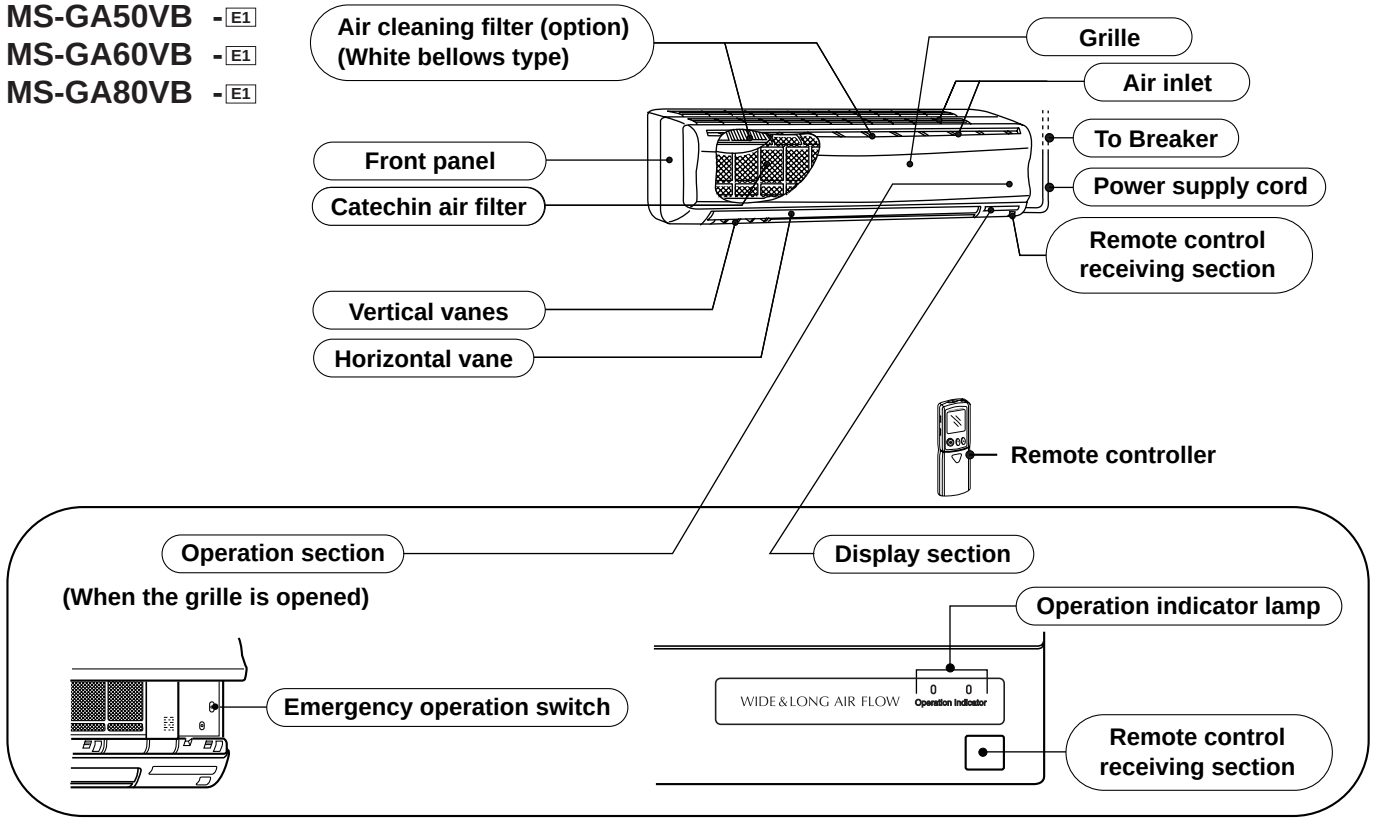
MS-A30WV -E1 → MS-GA80VB -E1

1. Model name has been changed.
   Indication of capacity has been changed. (BTU→kW)
2. Grille design has been changed.
3. Unit size has been changed.(W 1,100㎜×H 325㎜×D 227㎜ → W1,100㎜×H 325㎜×D 258㎜)

2 PART NAMES AND FUNCTIONS

INDOOR UNIT

MS-GA50VB -E1
MS-GA60VB -E1
MS-GA80VB -E1



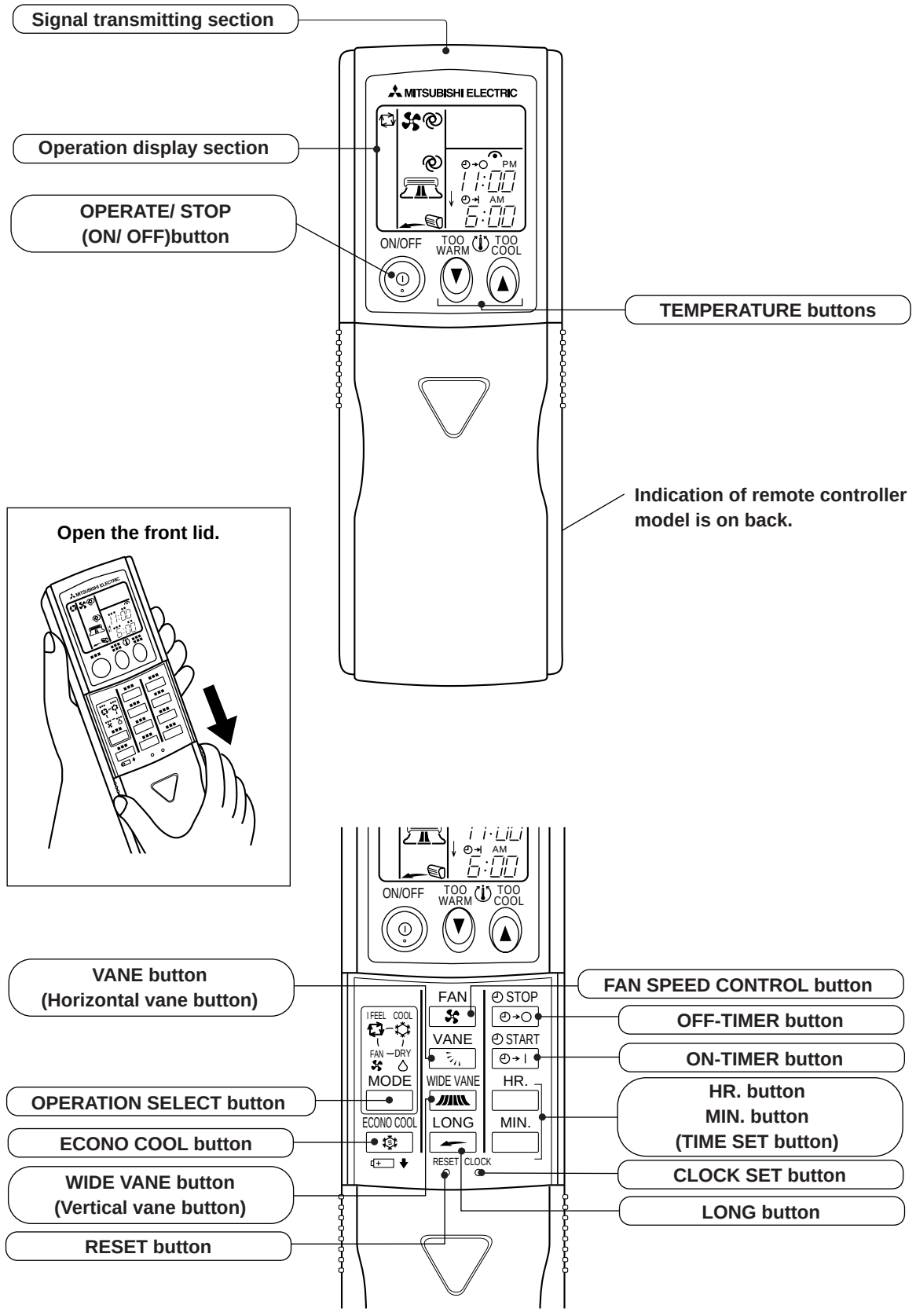
ACCESSORIES

Indoor unit

		MS-GA50VB -E1 MS-GA60VB -E1 MS-GA80VB -E1
①	Installation plate	1
②	Installation plate fixing screw 4 × 25 mm	7
③	Remote controller holder	1
④	Fixing screw for ③ × 3.5 × 1.6 mm (Black)	2
⑤	Battery (AAA) for remote controller	2
⑥	Wireless remote controller	1
⑦	Felt tape (Used for left or left-rear piping)	1

REMOTE CONTROLLER

MS-GA50VB -E1
MS-GA60VB -E1
MS-GA80VB -E1



3 SPECIFICATION

Indoor model			MS-GA50VB - E1	MS-GA60VB - E1
Function			Cooling	Cooling
Power supply			Single phase 230V, 50Hz	Single phase 230V, 50Hz
Capacity	Air flow(High/Med.※/Low※)	m³ /h	768/642※/528※	768/672※/588※
Electrical data	Power outlet	A	10	10
	Running current	A	0.30	0.30
	Power input	W	60	60
	Auxiliary heater	A(kW)	—	—
	Power factor	%	87	87
	Fan motor current	A	0.30	0.30
Fan motor	Model		RC4V32-AA	RC4V32-AA
	Winding resistance(at 20℃)	Ω	WHT-BLK 293 BLK-RED 146	WHT-BLK 293 BLK-RED 146
	Dimensions W×H×D	mm	1,100×325×258	1,100×325×258
	Weight	kg	16	16
Special remarks	Air direction		5	5
	Sound level(High/Med.※/Low※)	dB	42/38※/34※	45/41※/37※
	Fan speed(High/Med.※/Low※)	rpm	1,070/920※/780※	1,070/960※/850※
	Fan speed regulator		3	3
	Thermistor RT11(at 25℃)	kΩ	10	10
	Thermistor RT12(at 25℃)	kΩ	10	10
Remote controller model			KM04B	KM04B

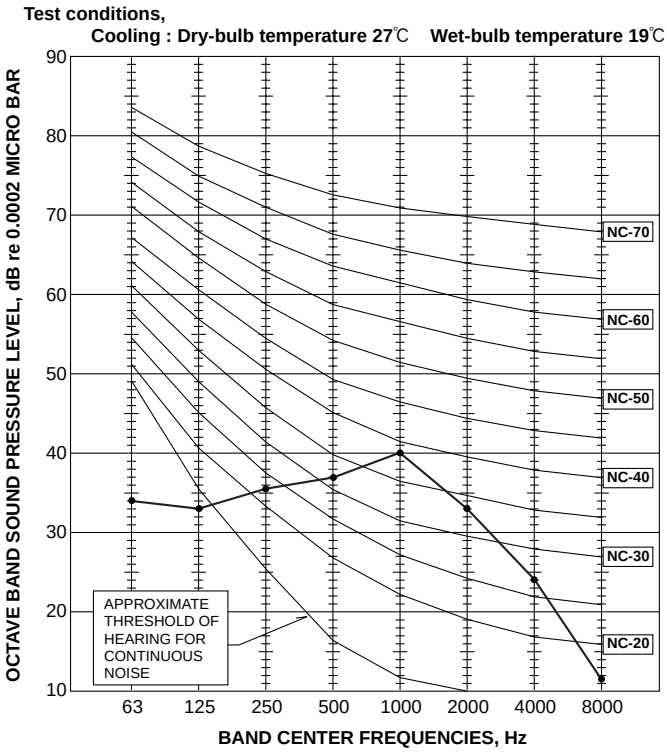
Indoor model			MS-GA80VB - E1
Function			Cooling
Power supply			Single phase 230V, 50Hz
Capacity	Air flow(High/Med.※/Low※)	m³ /h	960/822※/684※
Electrical data	Power outlet	A	10
	Running current	A	0.34
	Power input	W	69
	Auxiliary heater	A(kW)	—
	Power factor	%	88
	Fan motor current	A	0.34
Fan motor	Model		RC4V40-AA
	Winding resistance(at 20℃)	Ω	WHT-BLK 138.2 BLK-RED 159.0
	Dimensions W×H×D	mm	1,100×325×258
	Weight	kg	16
Special remarks	Air direction		5
	Sound level(High/Med.※/Low※)	dB	47/42※/37※
	Fan speed(High/Med.※/Low※)	rpm	1,280/1,130※/970※
	Fan speed regulator		3
	Thermistor RT11(at 25℃)	kΩ	10
	Thermistor RT12(at 25℃)	kΩ	10
	Thermistor RT13(at 25℃)	kΩ	10
Remote controller model			KM04B

NOTE: Test conditions are based on ISO 5151.
Cooling : Indoor DB27°C WB19°C
Outdoor DB35°C WB(24°C)
Indoor-Outdoor piping length : 5m
※ Reference value

4 NOISE CRITERIA CURVES

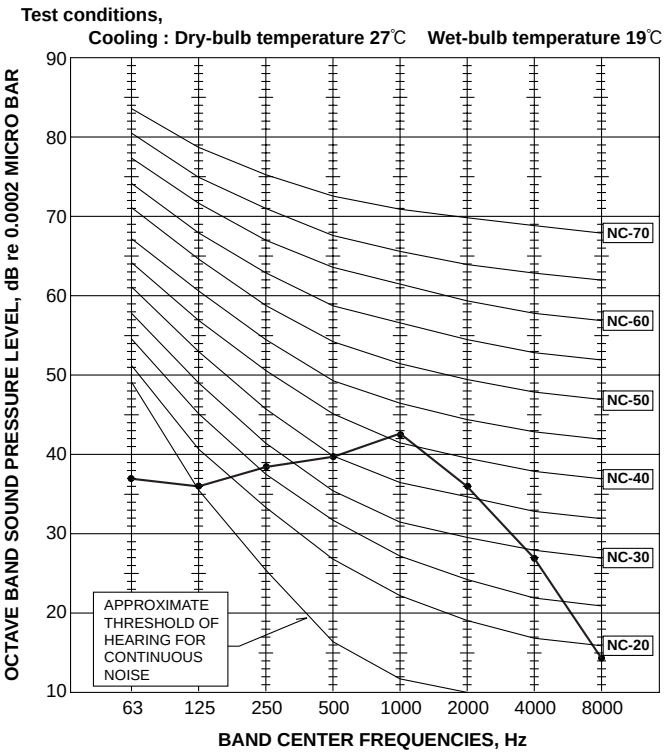
MS-GA50VB -E1

FAN SPEED	SPL(dB(A))	LINE
High	42	



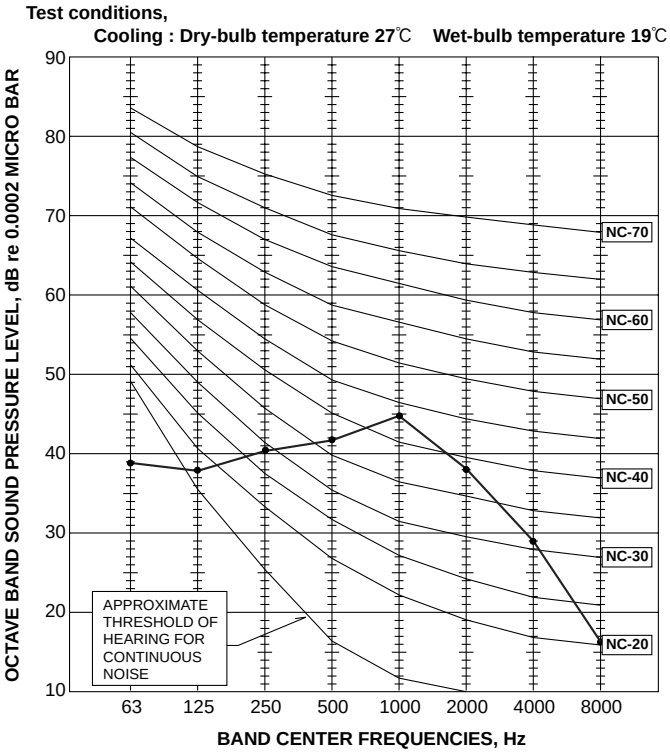
MS-GA60VB -E1

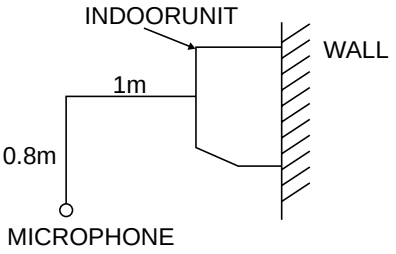
FAN SPEED	SPL(dB(A))	LINE
High	45	



MS-GA80VB -E1

FAN SPEED	SPL(dB(A))	LINE
High	47	



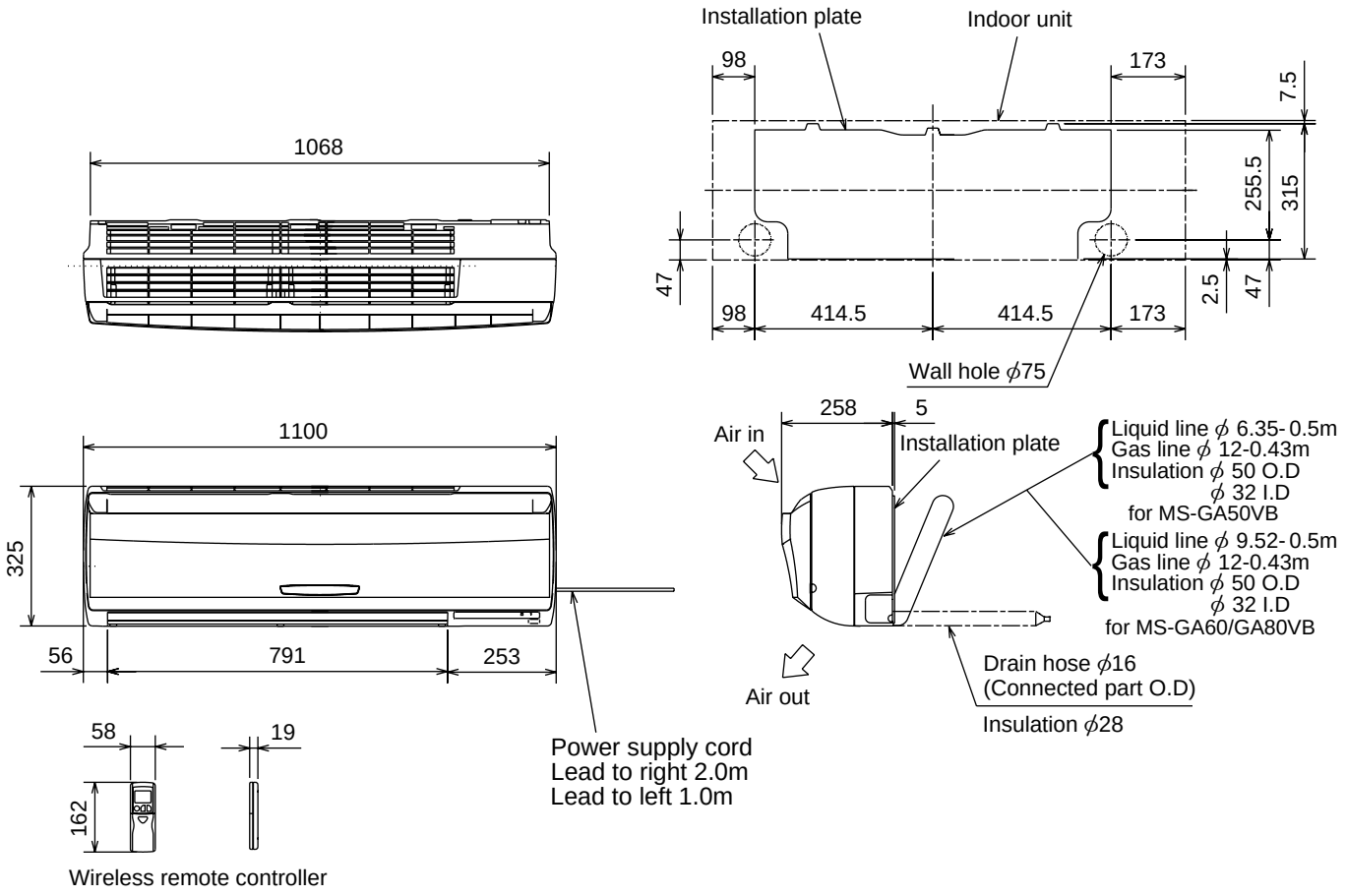


5 OUTLINES AND DIMENSIONS

MS-GA50VB -E1
MS-GA60VB -E1
MS-GA80VB -E1

Unit: mm

INDOOR UNIT

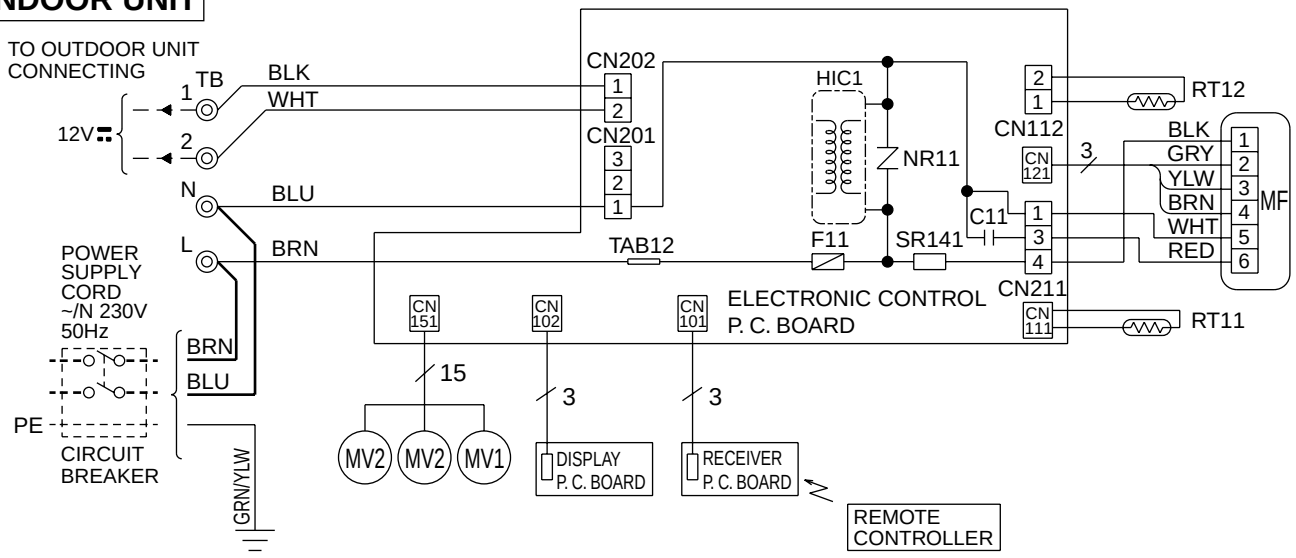


6 WIRING DIAGRAM

MS-GA50VB -E1
MS-GA60VB -E1

MODELS WIRING DIAGRAM

INDOOR UNIT



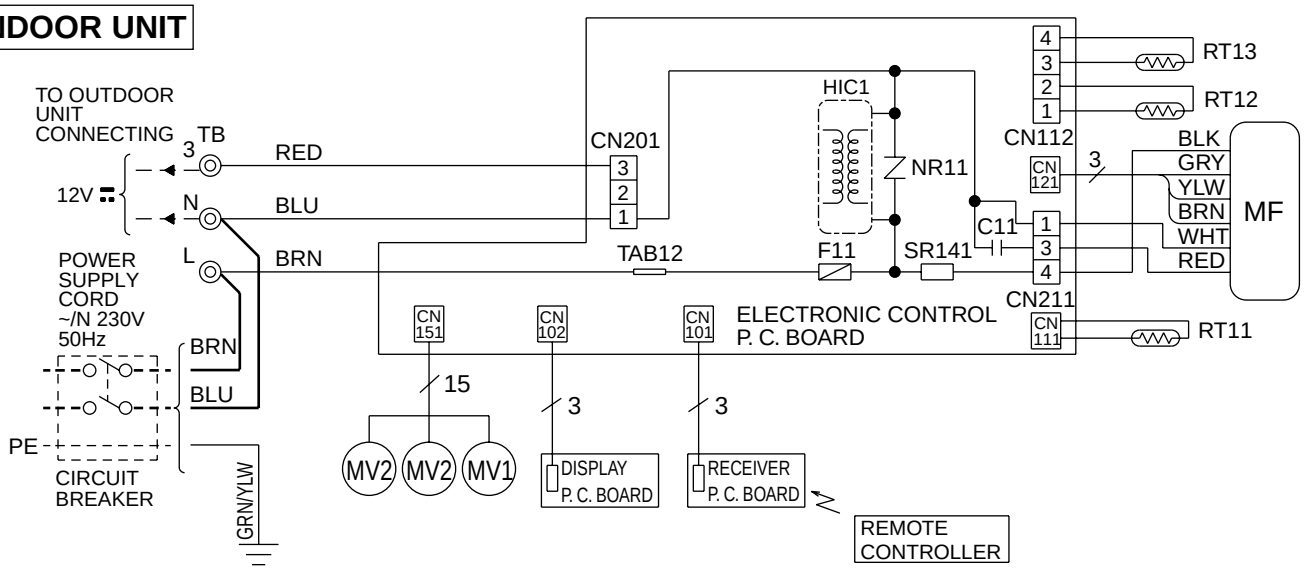
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C11	INDOOR FAN CAPACITOR	MV1	VANE MOTOR (HORIZONTAL)	RT12	INDOOR COIL THERMISTOR
F11	FUSE (3.15A)	MV2	VANE MOTOR (VERTICAL)	SR141	SOLID STATE RELAY
HIC1	DC/DC CONVERTER	NR11	VARISTOR	TB	TERMINAL BLOCK
MF	INDOOR FAN MOTOR (INNER FUSE)	RT11	ROOM TEMPERATURE THERMISTOR		

NOTES: 1.About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2.Use copper conductors only. (For field wiring)
3.Symbols below indicate.
◎ : Terminal block ⊏⊐ : Connector

MS-GA80VB -E1

MODEL WIRING DIAGRAM

INDOOR UNIT



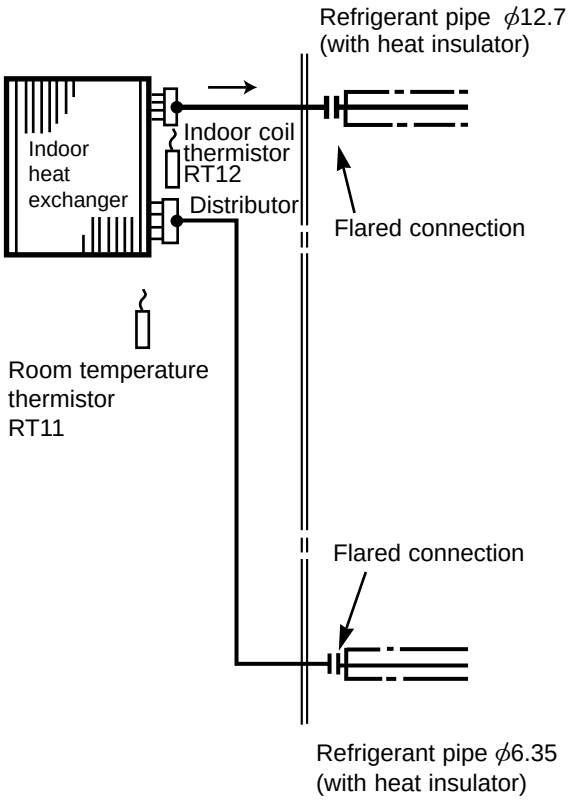
SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
C11	INDOOR FAN CAPACITOR	MV2	VANE MOTOR(VERTICAL)	SR141	SOLID STATE RELAY
F11	FUSE(3.15A)	NR11	VARISTOR	TB	TERMINAL BLOCK
HIC1	DC/DC CONVERTER	RT11	ROOM TEMPERATURE THERMISTOR		
MF	INDOOR FAN MOTOR(INNER PROTECTOR)	RT12	INDOOR COIL THERMISTOR (MAIN)		
MV1	VANE MOTOR(HORIZONTAL)	RT13	INDOOR COIL THERMISTOR (SUB)		

NOTES: 1.About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2.Use copper conductors only. (For field wiring)
3.Symbols below indicate.
◎ : Terminal block ⊏⊐ : Connector

7 REFRIGERANT SYSTEM DIAGRAM

MS-GA50VB -E1

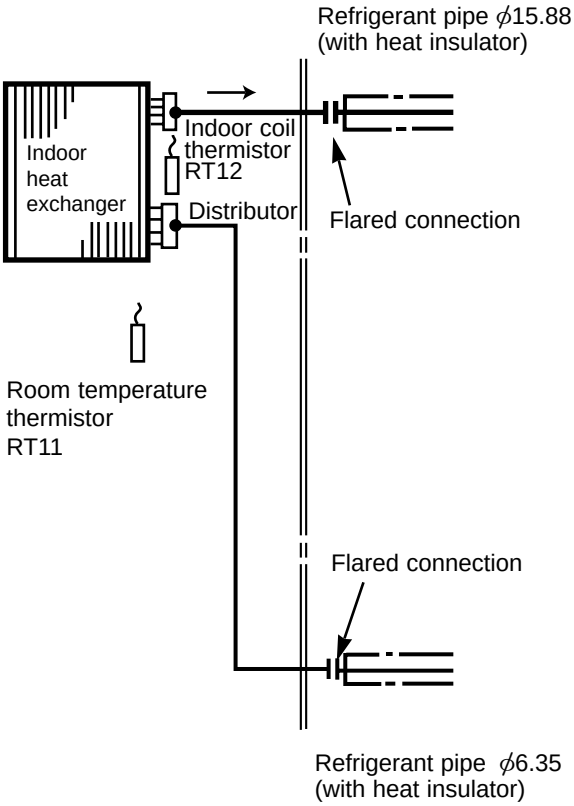
INDOOR UNIT



MS-GA60VB -E1

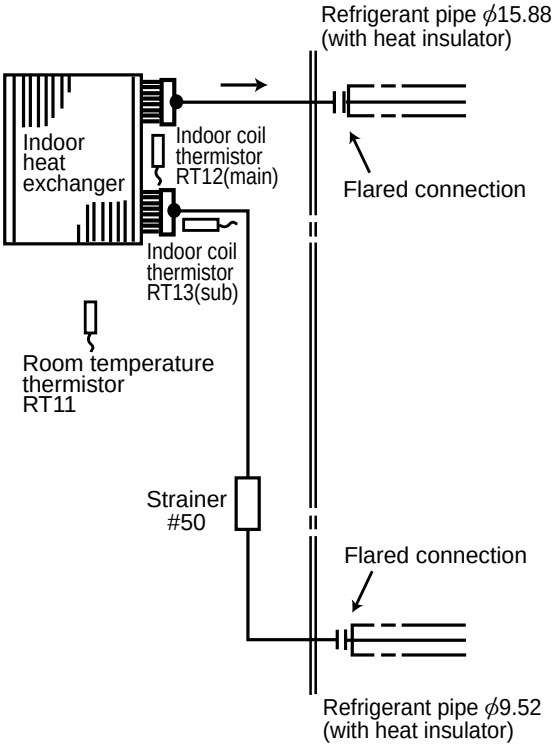
Unit:mm

INDOOR UNIT



MS-GA80VB -E1

INDOOR UNIT



→ Refrigerant flow in cooling

8 SERVICE FUNCTIONS

MS-GA50VB -E1
MS-GA60VB -E1
MS-GA80VB -E1

8-1. TIMER SHORT MODE

For service, set time can be shortened by short circuit of JPG and JPS on the electronic control P.C. board.
The time will be shortened as follows.
Set time : 1 minute → 1-second
Set time : 3 minute → 3-second (It takes 3 minutes for the compressor to start operation. However, the starting time is shortened by short circuit of JPG and JPS.)

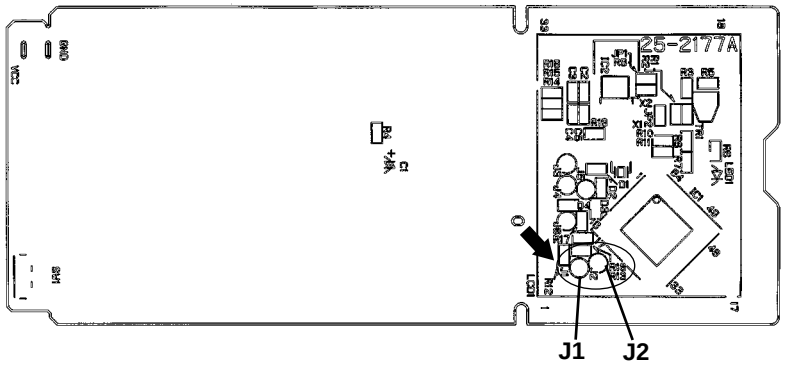
8-2. P.C. BOARD MODIFICATION FOR INDIVIDUAL OPERATION

A maximum of 4 indoor units with wireless remote controllers can be used in a room.
In this case, to operate each indoor unit individually by each remote controller, P.C. boards of remote controller must be modified according to the number of the indoor unit.

How to modify the remote controller P.C. board

Remove batteries before modification.
The board has a print as shown below :

Remote controller model : KM04B



NOTE : For remodelling, take out the batteries and press the OPERATE/STOP(ON/OFF)button twice or 3 times at first. After finish remodelling, put back the batteries then press the RESET button.

The P.C. board has the print “J1” and “J2”. Solder “J1” and “J2” according to the number of indoor unit as shown in Table 1.
After modification, press the RESET button.

Table 1

	1 unit operation	2 units operation	3 units operation	4 units operation
No. 1 unit	No modification	Same as at left	Same as at left	Same as at left
No. 2 unit	–	Solder J1	Same as at left	Same as at left
No. 3 unit	–	–	Solder J2	Same as at left
No. 4 unit	–	–	–	Solder both J1 and J2

How to set the remote controller exclusively for particular indoor unit

After you turn the breaker ON, the first remote controller that sends the signal to the indoor unit will be regarded as the remote controller for the indoor unit.
The indoor unit will only accepts the signal from the remote controller that has been assigned to the indoor unit once they are set. The setting will be cancelled if the breaker has turned off, or the power supply has shut down.
Please conduct the above setting once again after the power has restored.

8-3. AUTO RESTART FUNCTION

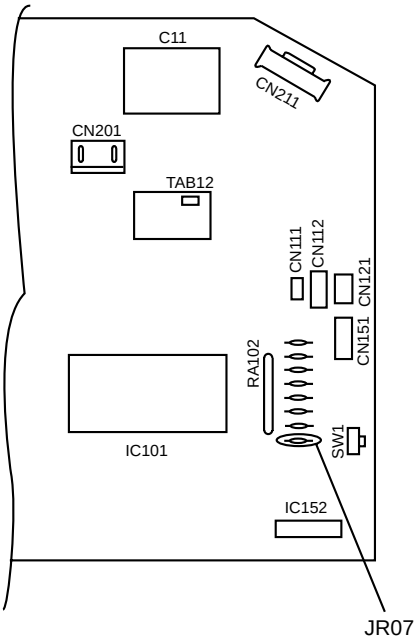
When the indoor unit is controlled with the remote controller, the operation mode, set temperature, and the fan speed are memorized by the indoor electronic control P.C.board. The “AUTO RESTART FUNCTION” sets to work the moment power has restored after power failure.Then, the unit will restart automatically. However if the unit is operated in “I FEEL CONTROL” mode before power failure, the operation is not memorized. In “I FEEL CONTROL” mode, the operation is decided by the initial room temperature.

How to release “AUTO RESTART FUNCTION”

①Turn off the main power for the unit.

②Pull out the electronic control P.C. board, the receiver P.C. board and the display P.C. board. (Refer to page 19.)

③Solder jumper wire to JR07 on the indoor electronic control P.C. board. (Refer to page 18.)



Operation

①If the main power has been cut, the operation settings remain.

②After the power is restored, the unit restarts automatically according to the memory.(However, it takes at least 3 minutes for the compressor to start running.)

NOTE

- The operation settings are memorized when 10 seconds have passed after the remote controller was operated with the remote controller.
- If main power is turned off or a power failure occurs while AUTO START/STOP timer is active ,the timer setting is cancelled.
- If the unit has been off with the remote controller before power failure, the auto restart function does not work as the power button of the remote controller is off.
- To prevent breaker off due to the rush of starting current, systematize other home appliances not to turn on at the same time.
- When some air conditioners are connected to the same supply system, if they are operated before power failure, the starting current of all the compressors may flow simultaneously at restart.
  Therefore, the special counter-measures are required to prevent the main voltage-drop or the rush of the starting current by adding to the system that allows the units to start one by one.

9 TROUBLESHOOTING

MS-GA50VB -E1
MS-GA60VB -E1
MS-GA80VB -E1

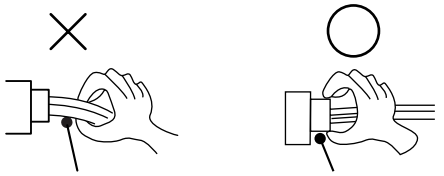
9-1. Cautions on troubleshooting

1. Before troubleshooting, check the following:

(1) Check the power supply voltage.
(2) Check the indoor/outdoor connecting wire for mis-wiring.

2. Take care the following during servicing.

(1) Before servicing the air conditioner, be sure to first turn off the remote controller to stop the main unit, and then after confirming the horizontal vane is closed, turn off the breaker and / or disconnect the power plug.
(2) Be sure to turn OFF the power supply before removing the front panel, the cabinet, the top panel, and the electronic control P.C. board.
(3) When removing the electronic control P.C. board, hold the edge of the board with care NOT to apply stress on the components.
(4) When connecting or disconnecting the connectors, hold the housing of the connector. DO NOT pull the lead wires.



3. Troubleshooting procedure

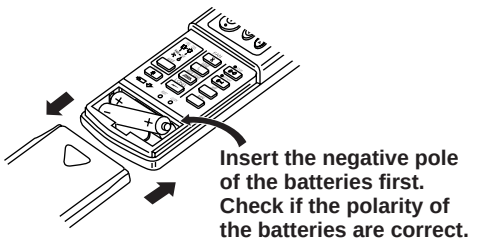
(1) First, check if the OPERATION INDICATOR lamp on the indoor unit is flashing on and off to indicate an abnormality. To make sure, check how many times the abnormality indication is flashing on and off before starting service work.
(2) Before servicing check that the connector and terminal are connected properly.
(3) If the electronic control P.C. board is supposed to be defective, check the copper foil pattern for disconnection and the components for bursting and discolouration.
(4) When troubleshooting, refer to 9-2. and 9-3..

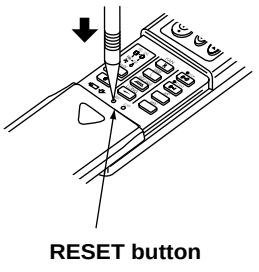
4. How to replace batteries

Weak batteries may cause the remote controller malfunction.
In this case, replace the batteries to operate the remote controller normally.

① Remove the front lid and insert batteries. Then reattach the front lid.

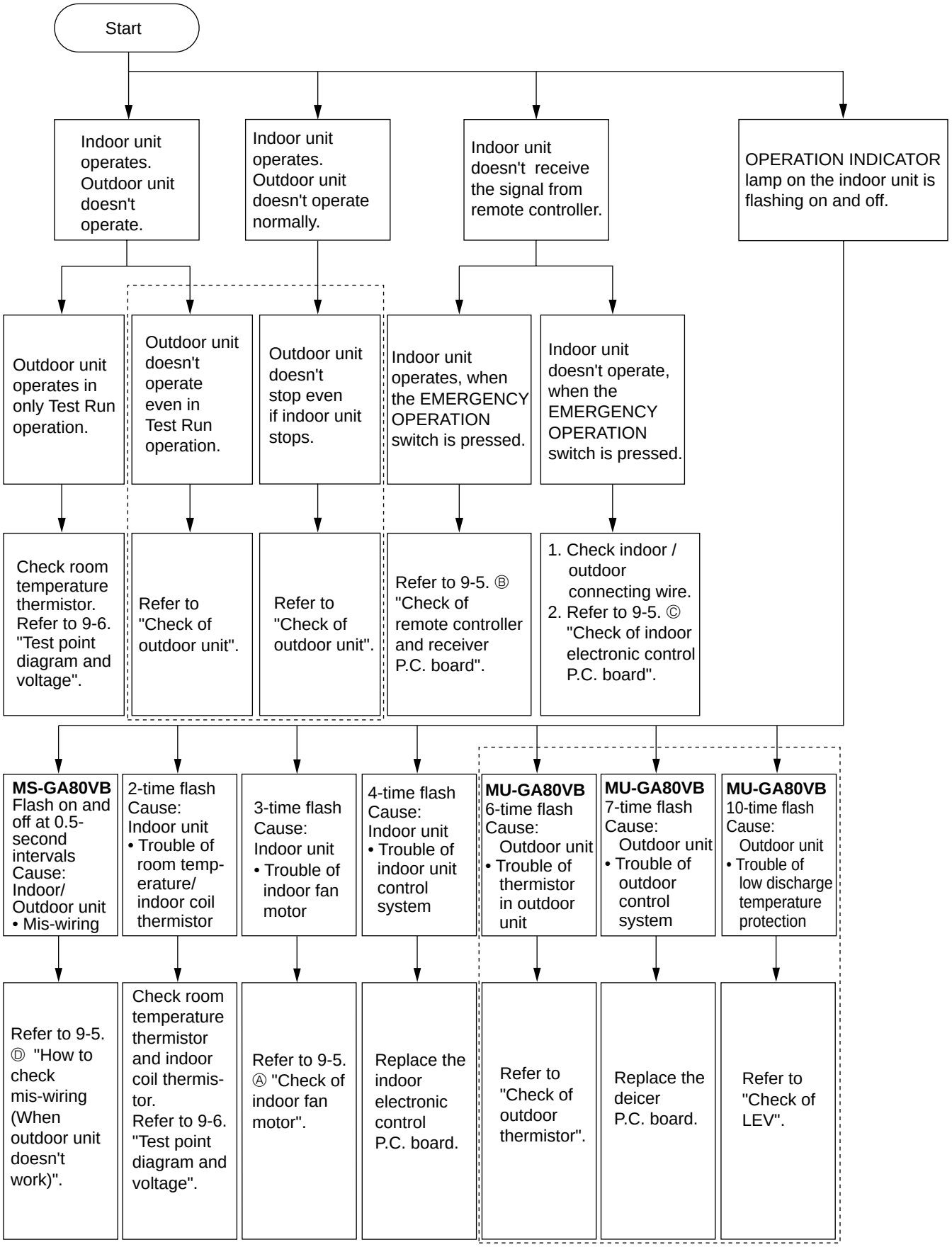
② Press the RESET button with tip end of ball point pen or the like, and then use the remote controller.





NOTE : If the RESET button is not pressed, the remote controller may not operate correctly.

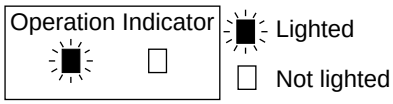
9-2. Instruction of troubleshooting


Start
Indoor unit operates. Outdoor unit doesn't operate.
Indoor unit operates. Outdoor unit doesn't operate normally.
Indoor unit doesn't receive the signal from remote controller.
OPERATION INDICATOR lamp on the indoor unit is flashing on and off.
Outdoor unit operates in only Test Run operation.
Outdoor unit doesn't operate even in Test Run operation.
Outdoor unit doesn't stop even if indoor unit stops.
Indoor unit operates, when the EMERGENCY OPERATION switch is pressed.
Indoor unit doesn't operate, when the EMERGENCY OPERATION switch is pressed.
Check room temperature thermistor. Refer to 9-6. "Test point diagram and voltage".
Refer to "Check of outdoor unit".
Refer to "Check of outdoor unit".
Refer to 9-5. Ⓑ "Check of remote controller and receiver P.C. board".
1. Check indoor / outdoor connecting wire.
2. Refer to 9-5. Ⓒ "Check of indoor electronic control P.C. board".
MS-GA80VB Flash on and off at 0.5-second intervals Cause: Indoor/ Outdoor unit • Mis-wiring
2-time flash Cause: Indoor unit • Trouble of room temperature/ indoor coil thermistor
3-time flash Cause: Indoor unit • Trouble of indoor fan motor
4-time flash Cause: Indoor unit • Trouble of indoor unit control system
MU-GA80VB 6-time flash Cause: Outdoor unit • Trouble of thermistor in outdoor unit
MU-GA80VB 7-time flash Cause: Outdoor unit • Trouble of outdoor control system
MU-GA80VB 10-time flash Cause: Outdoor unit • Trouble of low discharge temperature protection
Refer to 9-5. Ⓓ "How to check mis-wiring (When outdoor unit doesn't work)".
Check room temperature thermistor and indoor coil thermistor. Refer to 9-6. "Test point diagram and voltage".
Refer to 9-5. Ⓐ "Check of indoor fan motor".
Replace the indoor electronic control P.C. board.
Refer to "Check of outdoor thermistor".
Replace the deicer P.C. board.
Refer to "Check of LEV".

As for outdoor unit, refer to service manual OB370.

9-3. Troubleshooting check table

• The following indication applies regardless of shape of the indicator.



· Flashing of the OPERATION INDICATOR lamp (on the left-hand side) indicates possible abnormalities.
· The OPERATION INDICATOR lamp (on the left-hand side) is lighted during normal operation.

Before taking measures, make sure that the symptom reappears, for accurate troubleshooting.
Self check table

No.	Abnormal point	Operation indicator lamp	Symptom	Detection method	Checkpoint
1	**MS-GA80VB** Mis-Wiring	0.5-second ON 0.5-second OFF	Outdoor unit does not operate.	3 minutes after power supply turns ON, when serial signal is not received.	• Refer to 9-5. Ⓓ "How to check mis-wiring ".
2	Indoor coil thermistor Room temperature thermistor	2-time flash 2.5-second OFF	Outdoor unit does not operate.	Detect Indoor coil/room temperature thermistor short or open circuit every 8 seconds during operation.	• Refer to the characteristics of main indoor coil thermistor, sub indoor coil thermistor, and room temperature on page 18.
3	Indoor fan motor	3-time flash 2.5-second OFF	Indoor fan repeats 12 seconds ON and 3minutes OFF. When the indoor fan breaks, the fan keeps stopping.	When rotational frequency feedback signal is not emitting during 12-second indoor fan operation.	• Refer to 9-5. Ⓐ "Check of indoor fan motor".
4	Indoor control system	4-time flash 2.5-second OFF	Outdoor unit does not operate.	When it cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	• Check the indoor electronic control P.C. board.
5	**MU-GA80VB** Outdoor thermistor	6-time flash 2.5-second OFF	Outdoor unit does not operate.	<Thermistor short> Thermistors are abnormal when they short after compressor start-up. <Thermistor open> Thermistors are abnormal when they open after compressor start-up. However, discharge temperature thermistor is abnormal when open circuit is detected more than 10 minutes after compressor start-up.	• Check the deicer P.C. board. • Reconnect the connector. Refer to "Check of outdoor thermistor". Refer to service manual OB370.
6	**MU-GA80VB** Outdoor control system	7-time flash 2.5-second OFF	Outdoor unit does not operate.	When it cannot properly read data in the nonvolatile memory of the deicer P.C. board, outdoor unit stops.	• Check the deicer P.C. board. Refer to service manual OB370.
7	**MU-GA80VB** Low discharge tempera-ture protection	10-time flash 2.5-second OFF	Outdoor unit does not operate.	When discharge temperature has been 50℃ or less on cool operation.	• Refer to "Check of LEV". • Check refrigerant circuit and refrigerant amount. Refer to service manual OB370.

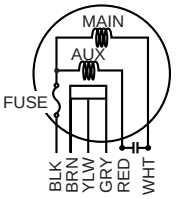
NOTE : When the indoor unit has started operation and the above detection method has detected an abnormality (the first detection after the power ON), the indoor electronic control P.C. board turns OFF the indoor fan motor with the OPERATION INDICATOR lamp flashing.

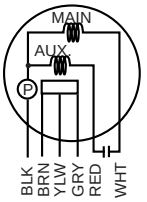
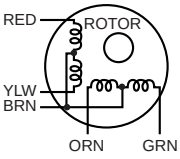
9-4. Trouble criterion of main parts

MS-GA50VB -E1
MS-GA60VB -E1
MS-GA80VB -E1

<table>
<tr><th>Part name</th><th colspan="3">Check method and criterion</th><th>Figure</th></tr>
<tr><td>Room temperature thermistor(RT11)
Indoor coil thermistor (RT12(main), RT13(sub))</td><td colspan="3">Measure the resistance with a tester.
(Part temperature 10˚C ~ 30˚C)<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>8 kΩ ~ 20 kΩ</td><td>Open or short-circuit</td></tr></table></td><td></td></tr>
<tr><td rowspan="2">Indoor fan motor(MF)

MS-GA50/GA60VB
INNER FUSE
145℃ CUT OFF

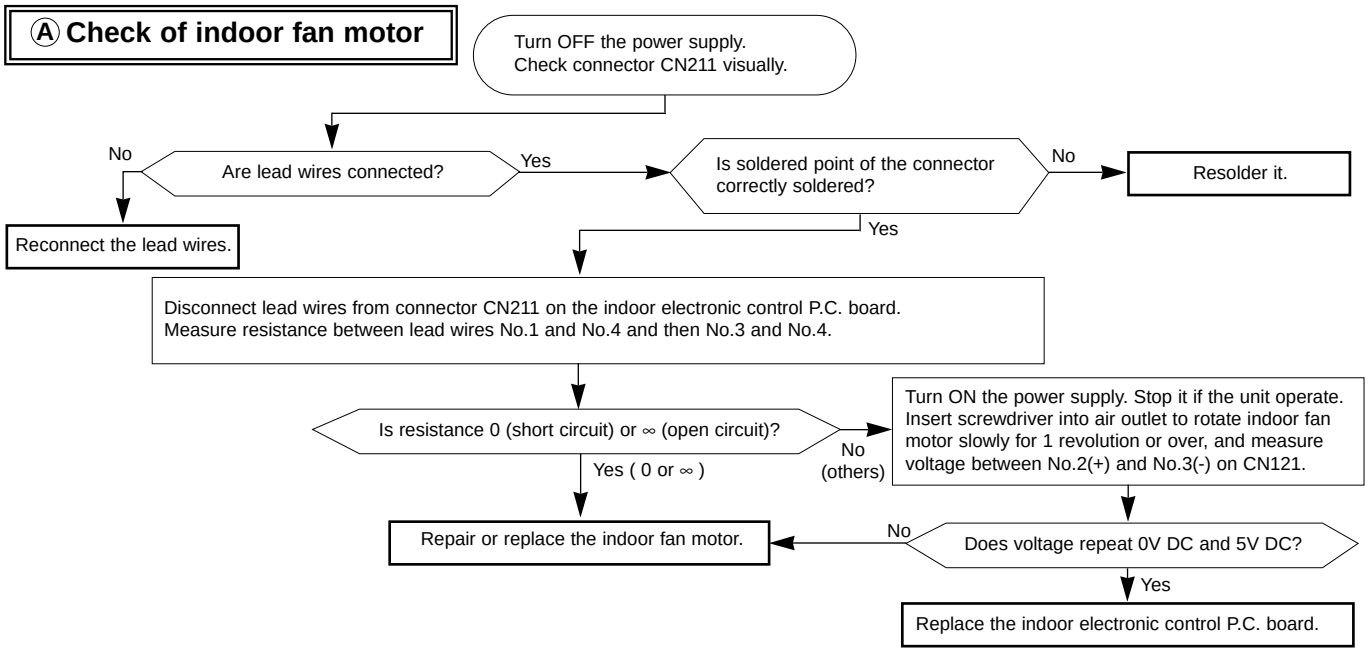
MS-GA80VB
INNER PROTECTOR
135± 5℃ OPEN</td><td>Motor part</td><td>Measure the resistance between the terminals with a tester.
(Part temperature 10˚C ~ 30˚C)<table><tr><th rowspan="2">Color of lead wire</th><th colspan="2">Normal</th><th>Abnormal</th></tr><tr><th>MS-GA50/GA60VB</th><th>MS-GA80VB</th><th rowspan="3">Open or short-circuit</th></tr><tr><td>WHT – BLK</td><td>282 Ω ~ 305 Ω</td><td>133 Ω ~ 144 Ω</td></tr><tr><td>BLK – RED</td><td>141 Ω ~ 152 Ω</td><td>152 Ω ~ 165 Ω</td></tr></table></td><td rowspan="2">MS-GA50/GA60VB
 

MS-GA80VB
 
</td></tr>
<tr><td>Sensor part</td><td>Measure the voltage power ON.<table><tr><th>Color of lead wire</th><th>Normal</th><th>Abnormal</th></tr><tr><td>BRN – YLW</td><td>4.5 ~ 5.5V</td><td rowspan="2">Remain 0V or 5V</td></tr><tr><td>YLW – GRY</td><td>(When fan revolved one time)
0V→5V→0V
(Approx.)</td></tr></table></td></tr>
<tr><td>Horizontal vane motor(MV1)
Vertical vane motor(MV2)</td><td colspan="3">Measure the resistance between the terminal with a tester.
(Part temperature 10°C ~ 30°C)<table><tr><th>Normal</th><th>Abnormal</th></tr><tr><td>282 Ω ~ 306 Ω</td><td>Open or short-circuit</td></tr></table></td><td> 
</td></tr>
</table>

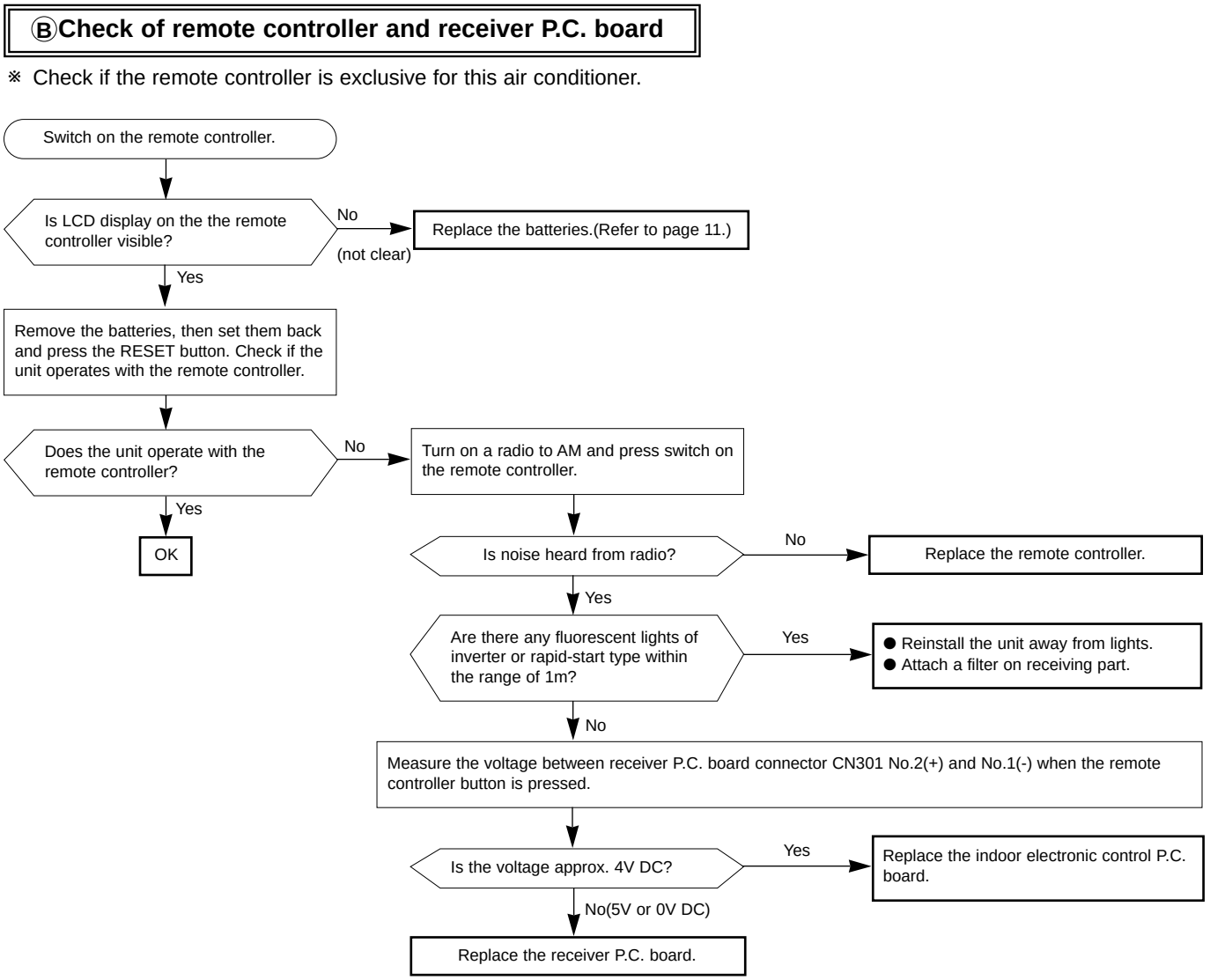
Ⓟ:INNER PROTECTOR

9-5. Troubleshoot flow

When OPERATION INDICATOR lamp flashes 3-time.
Indoor fan motor doesn't operate.

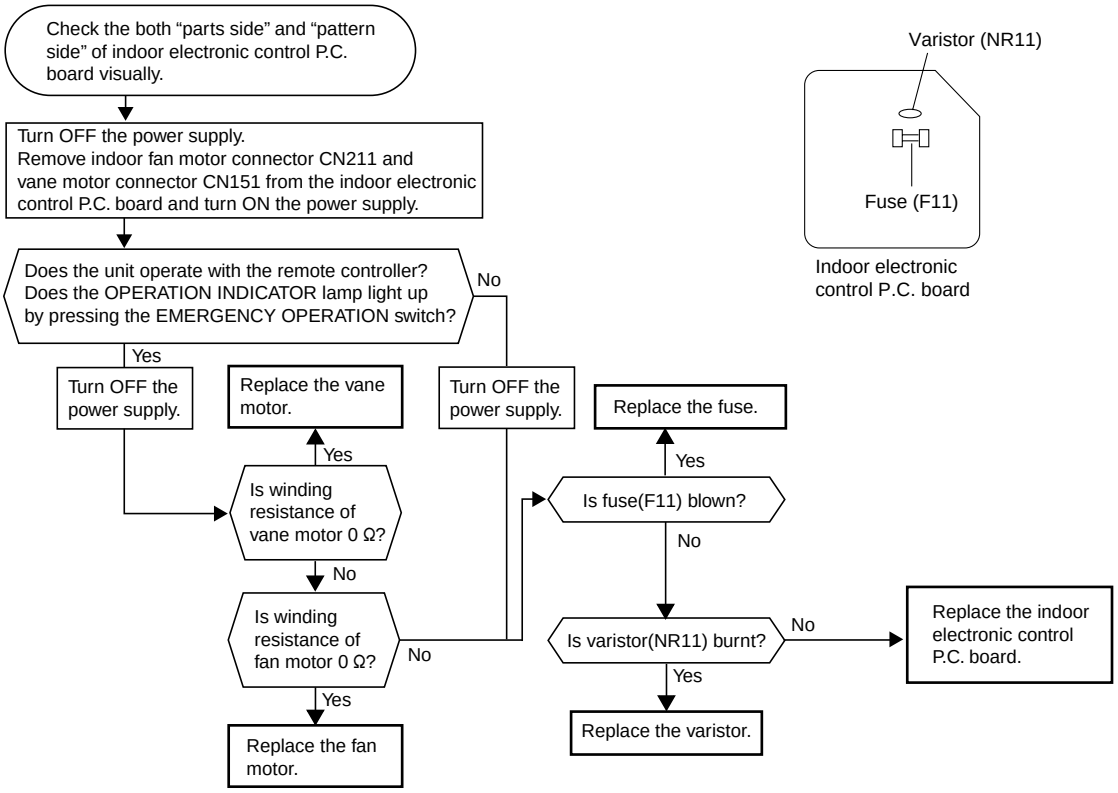

Ⓐ Check of indoor fan motor
Turn OFF the power supply.
Check connector CN211 visually.
Are lead wires connected?
No
Yes
Reconnect the lead wires.
Is soldered point of the connector correctly soldered?
No
Resolder it.
Yes
Disconnect lead wires from connector CN211 on the indoor electronic control P.C. board.
Measure resistance between lead wires No.1 and No.4 and then No.3 and No.4.
Is resistance 0 (short circuit) or ∞ (open circuit)?
No (others)
Turn ON the power supply. Stop it if the unit operate. Insert screwdriver into air outlet to rotate indoor fan motor slowly for 1 revolution or over, and measure voltage between No.2(+) and No.3(-) on CN121.
Yes (0 or ∞)
Repair or replace the indoor fan motor.
No
Does voltage repeat 0V DC and 5V DC?
Yes
Replace the indoor electronic control P.C. board.

Indoor unit operates by pressing the EMERGENCY OPERATION switch, but doesn't operate with the remote controller.


Ⓑ Check of remote controller and receiver P.C. board
※ Check if the remote controller is exclusive for this air conditioner.
Switch on the remote controller.
Is LCD display on the the remote controller visible?
No
(not clear)
Replace the batteries.(Refer to page 11.)
Yes
Remove the batteries, then set them back and press the RESET button. Check if the unit operates with the remote controller.
Does the unit operate with the remote controller?
No
Turn on a radio to AM and press switch on the remote controller.
Yes
OK
Is noise heard from radio?
No
Replace the remote controller.
Yes
Are there any fluorescent lights of inverter or rapid-start type within the range of 1m?
Yes
● Reinstall the unit away from lights.
● Attach a filter on receiving part.
No
Measure the voltage between receiver P.C. board connector CN301 No.2(+) and No.1(-) when the remote controller button is pressed.
Is the voltage approx. 4V DC?
Yes
Replace the indoor electronic control P.C. board.
No(5V or 0V DC)
Replace the receiver P.C. board.

The unit doesn't operate with the remote controller. Also, the OPERATION INDICATOR lamp doesn't light up by pressing the EMERGENCY OPERATION switch.

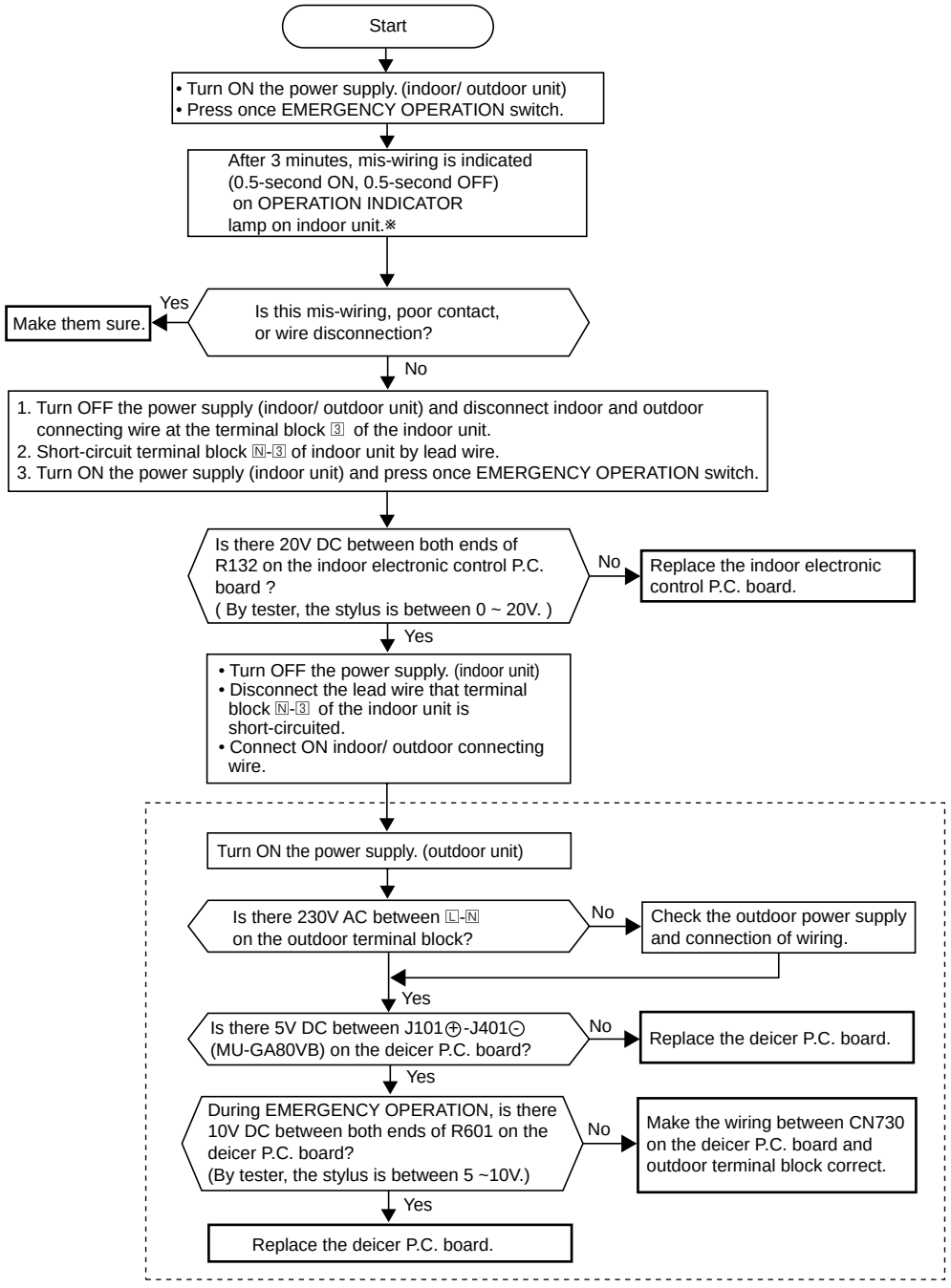
ⓒCheck of indoor electronic control P.C. board


Check the both "parts side" and "pattern side" of indoor electronic control P.C. board visually.
Turn OFF the power supply.
Remove indoor fan motor connector CN211 and vane motor connector CN151 from the indoor electronic control P.C. board and turn ON the power supply.
Does the unit operate with the remote controller? Does the OPERATION INDICATOR lamp light up by pressing the EMERGENCY OPERATION switch?
No
Yes
Turn OFF the power supply.
Replace the vane motor.
Yes
Is winding resistance of vane motor 0 Ω?
No
Is winding resistance of fan motor 0 Ω?
No
Yes
Replace the fan motor.
Turn OFF the power supply.
Replace the fuse.
Yes
Is fuse(F11) blown?
No
Is varistor(NR11) burnt?
No
Yes
Replace the varistor.
Replace the indoor electronic control P.C. board.
Varistor (NR11)
Fuse (F11)
Indoor electronic control P.C. board

When OPERATION INDICATOR lamp flashes ON and OFF in every 0.5-second.
Outdoor unit doesn't operate.

Ⓓ How to check mis-wiring MS-GA80VB

※ Short circuit of JPG and JPS on the indoor electronic control P.C. board enables self -check to be displayed in 3 seconds.

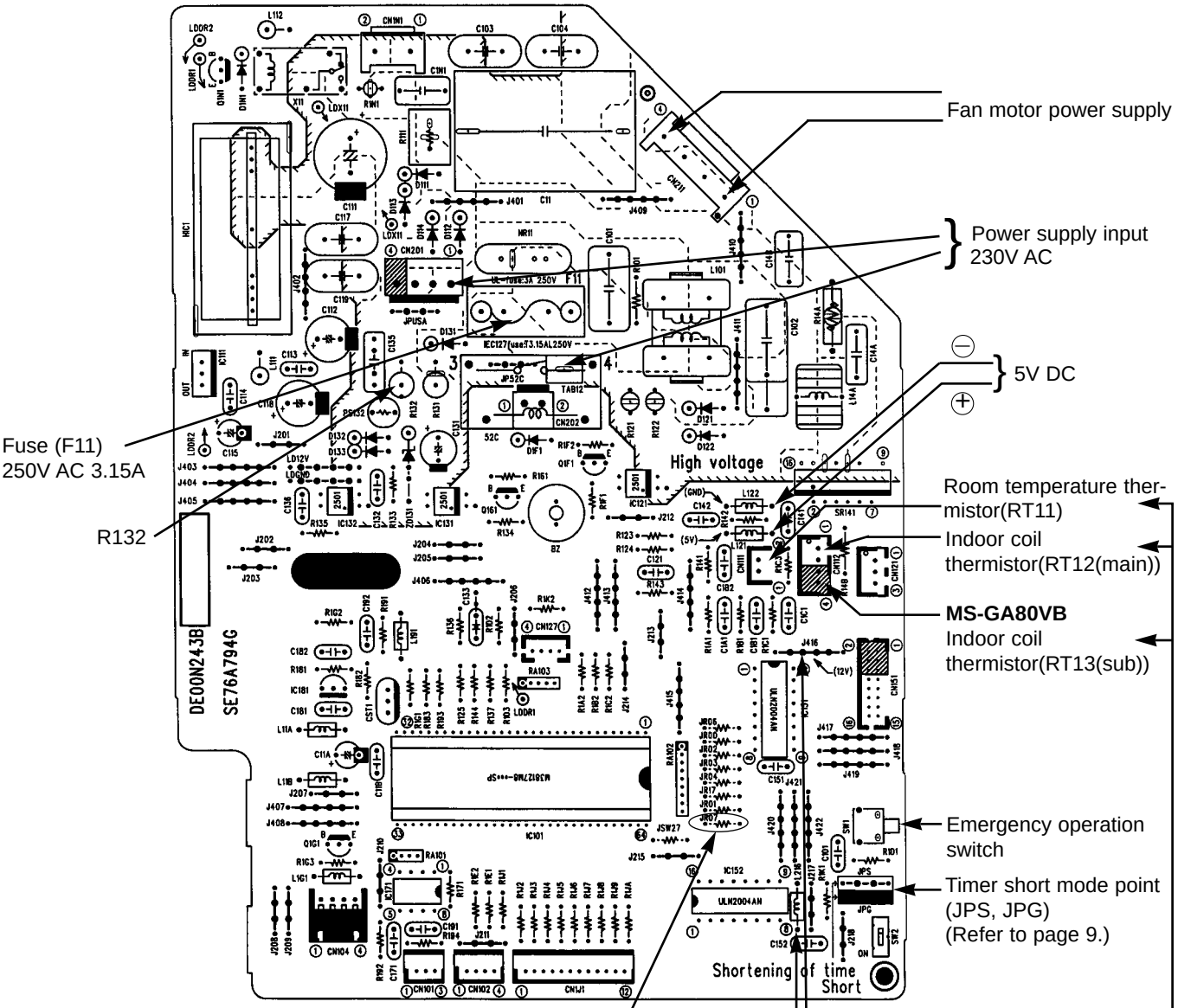

Start
• Turn ON the power supply. (indoor/ outdoor unit)
• Press once EMERGENCY OPERATION switch.
After 3 minutes, mis-wiring is indicated (0.5-second ON, 0.5-second OFF) on OPERATION INDICATOR lamp on indoor unit.※
Is this mis-wiring, poor contact, or wire disconnection?
Yes
Make them sure.
No
1. Turn OFF the power supply (indoor/ outdoor unit) and disconnect indoor and outdoor connecting wire at the terminal block 3 of the indoor unit.
2. Short-circuit terminal block N-3 of indoor unit by lead wire.
3. Turn ON the power supply (indoor unit) and press once EMERGENCY OPERATION switch.
Is there 20V DC between both ends of R132 on the indoor electronic control P.C. board ? (By tester, the stylus is between 0 ~ 20V.)
No
Replace the indoor electronic control P.C. board.
Yes
• Turn OFF the power supply. (indoor unit)
• Disconnect the lead wire that terminal block N-3 of the indoor unit is short-circuited.
• Connect ON indoor/ outdoor connecting wire.
Turn ON the power supply. (outdoor unit)
Is there 230V AC between L-N on the outdoor terminal block?
No
Check the outdoor power supply and connection of wiring.
Yes
Is there 5V DC between J101⊕-J401⊖ (MU-GA80VB) on the deicer P.C. board?
No
Replace the deicer P.C. board.
Yes
During EMERGENCY OPERATION, is there 10V DC between both ends of R601 on the deicer P.C. board? (By tester, the stylus is between 5 ~10V.)
No
Make the wiring between CN730 on the deicer P.C. board and outdoor terminal block correct.
Yes
Replace the deicer P.C. board.

As for outdoor unit, refer to service manual OB370.

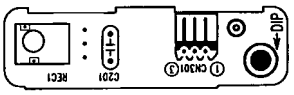
9-6. Test point diagram and voltage

MS-GA50VB -E1 MS-GA60VB -E1 MS-GA80VB -E1

Indoor electronic control P.C. board

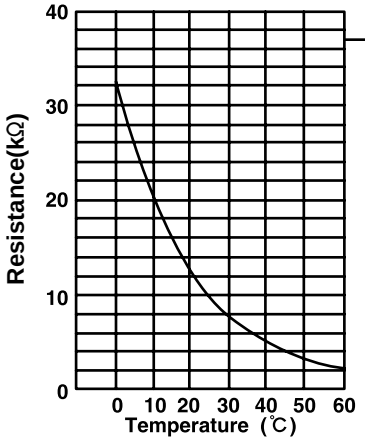


Receiver P.C. board



Release of “Auto restart function” Solder jumper wire to JR07. (Refer to page 10.)

Indoor coil thermistor(RT12(main), RT13(sub))
Room temperature thermistor (RT11)

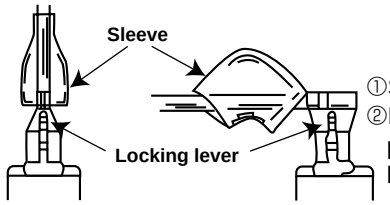


10 DISASSEMBLY INSTRUCTIONS

<"Terminal with lock mechanism" Detaching points>

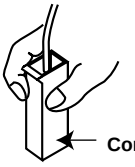
In case of terminal with lock mechanism, detach the terminal as shown below.
There are two types (Refer to (1) and (2)) of the terminal with lock mechanism.
The terminal with no lock mechanism can be removed by pulling it out.
Check the shape of the terminal and work.

(1) Slide the sleeve and check if there is a locking lever or not.



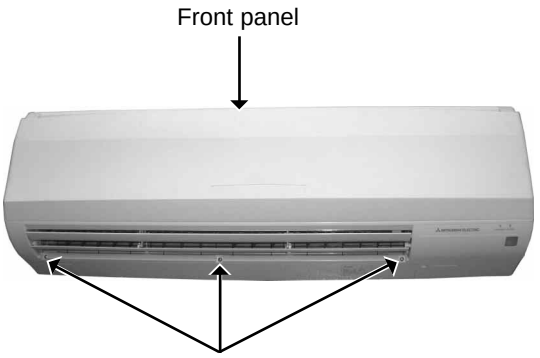
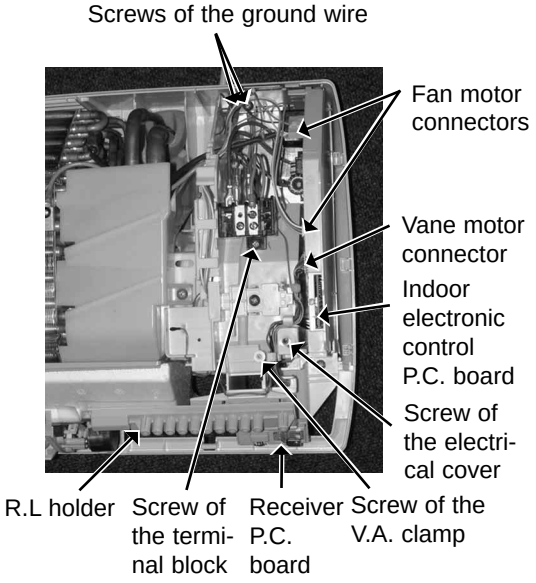
①Slide the sleeve.
②Pull the terminal while pushing the locking lever.

(2) The terminal with this connector is a terminal with lock mechanism



①Hold the sleeve, and pull out the terminal slowly.

MS-GA50VB -E1 MS-GA60VB -E1 MS-GA80VB -E1
INDOOR UNIT

OPERATING PROCEDURE	PHOTOS
1. Removing the front panel (1) Remove the screw caps of the front panel. Remove the screws. (2) Pull the panel down to your side slightly and unhook the catches at the top.	**Photo 1** 
2. Removing the electronic control P.C. board, the receiver P.C. board and the display P.C. board (1) Remove the front panel. (Refer to 1.) (2) Remove the screw of the electrical cover. Remove the electrical cover. (3) Remove the screws of the V.A. clamp. Remove the V.A. clamp. (4) Remove the screw of the terminal block. (5) Remove the screws of the ground wire. (6) Disconnect all the connectors and all the lead wires on the electronic control P.C. board. (7) Remove the R.L holder. (8) Remove the electronic control P.C. board. (9) Open the R.L holder, remove the receiver P.C. board and the display P.C. board.	**Photo 2** 

OPERATING PROCEDURE

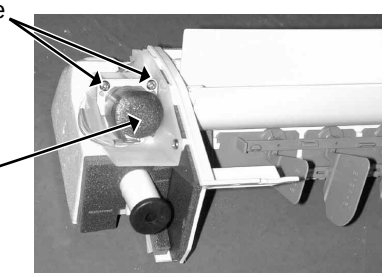
3. Removing the electrical box

(1) Remove the front panel. (Refer to 1.)
(2) Remove the electrical cover. (Refer to 2.)
(3) Disconnect the connector of the indoor coil thermistor.
(4) Disconnect the motor connector (CN211 and CN121) and the vane motor connector (CN151) on the electronic control P.C. board.
(5) Remove the screws of ground wire.
(6) Remove the fan motor lead wire and indoor coil thermistor from the electrical box.
(7) Remove the lead wire of vane motor from the bottom of electrical box.
(8) Remove the screw fixing the electrical box and remove the electrical box.

4. Removing the vane motor

(1) Remove the front panel. (Refer to 1.)
(2) Remove the electrical cover. (Refer to 2.)
(3) Remove the lead wire of vane motor. (Refer to 3.)
(4) Remove the R.L. holder.
(5) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.
(6) Remove the screws of the vane motor and disconnect the connector.
(7) Remove the vane motor.

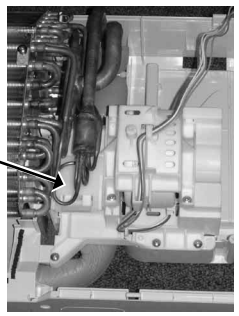
Photo 5



5. Removing the line flow fan and the indoor fan motor

(1) Remove the front panel. (Refer to 1.)
(2) Remove the electrical box. (Refer to 3.)
(3) Pull out the drain hose from the nozzle assembly and remove the nozzle assembly.
(4) Remove the water cut.
(5) Slide the hole cover and remove the hole cover.
(6) Remove the hexagon socket set screw from the line flow fan.
(7) Remove the screws fixing the fan motor and remove the fan motor. (Be careful not to drop the fan motor because it is heavy.)
(8) Remove the screws fixing the left side of the heat exchanger.
(9) Lift the left side of the heat exchanger.
(10) Remove the line flow fan.

Photo 8



PHOTOS

Photo 3

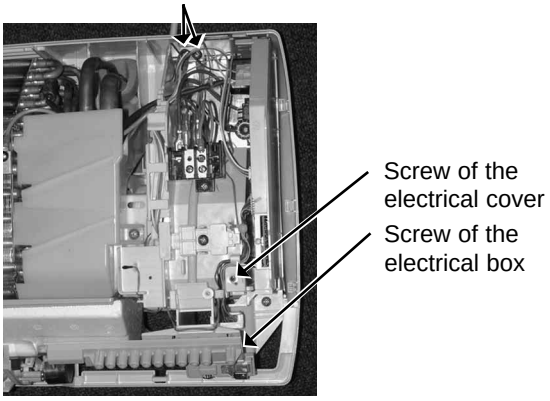


Photo 4

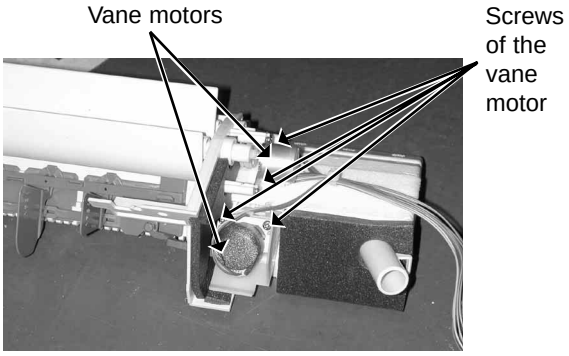


Photo 6

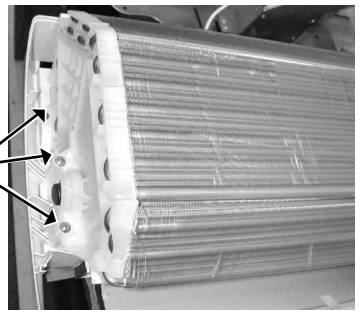
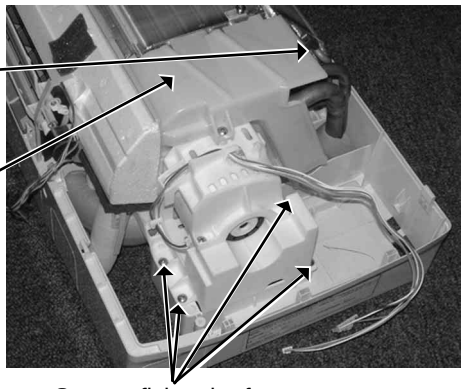


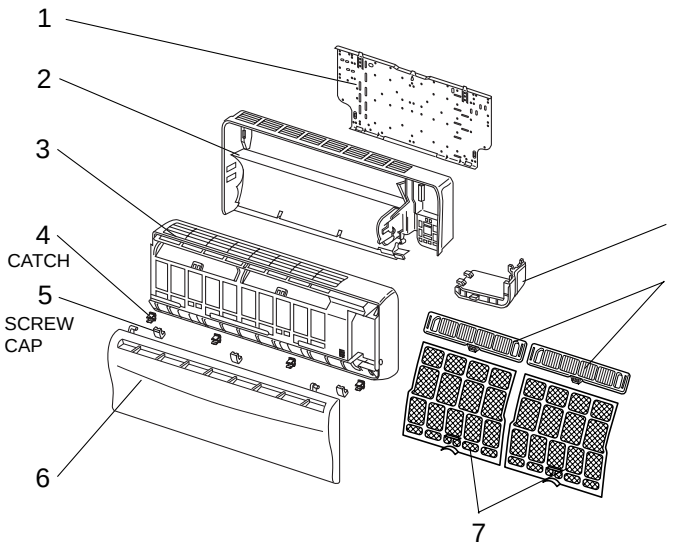
Photo 7

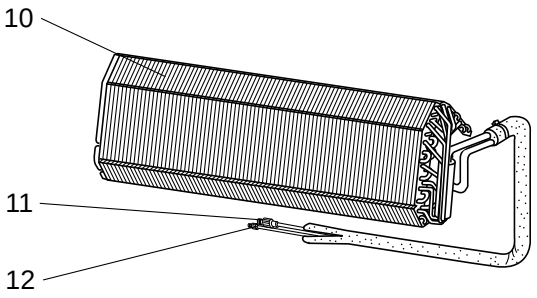


11 PARTS LIST

MS-GA50VB -E1 (WH)
MS-GA60VB -E1 (WH)
MS-GA80VB -E1 (WH)

11-1. INDOOR UNIT STRUCTURAL PARTS **11-2. INDOOR UNIT HEAT EXCHANGER**





11-1. INDOOR UNIT STRUCTURAL PARTS

Part number that is circled is not shown in the illustration.

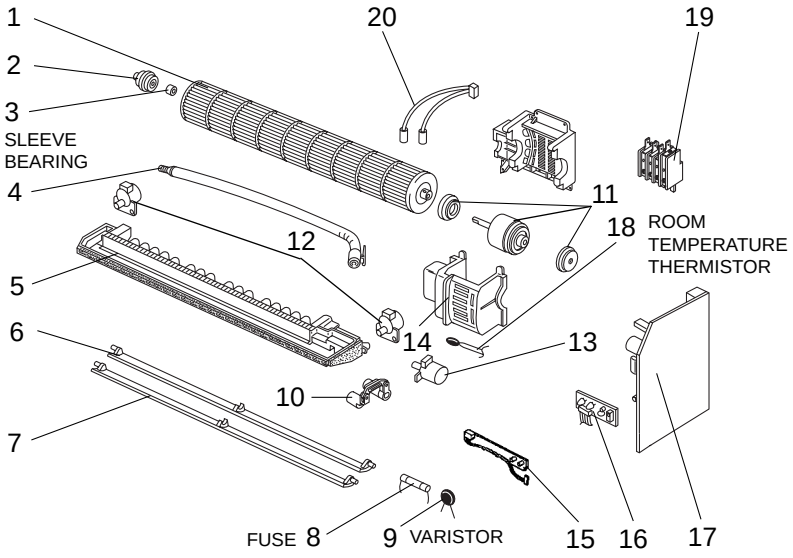
No.	Part No.	Part Name	Symbol in Wiring Diagram	Q'ty/unit			Remarks
				MS-GA50 VB - E1 (WH)	MS-GA60 VB - E1 (WH)	MS-GA80 VB - E1 (WH)	
1	E02 527 970	INSTALLATION PLATE		1	1	1	
2	E02 685 234	BOX (WH)		1	1	1	
3	E02 888 000	FRONT PANEL ASSEMBLY(WH)		1	1	1	Including No.4,5,6
4	E02 408 142	CATCH		4	4	4	4PCS/ SET
5	E02 685 067	SCREW CAP (WH)		3	3	3	3PCS/ SET
6	E02 888 010	GRILLE (WH)		1	1	1	
7	E02 534 100	CATECHIN AIR FILTER		2	2	2	
8	E02 685 975	CORNER BOX RIGHT		1	1	1	
⑨	E02 891 007	LAMP PANEL		1	1	1	

11-2. INDOOR UNIT HEAT EXCHANGER

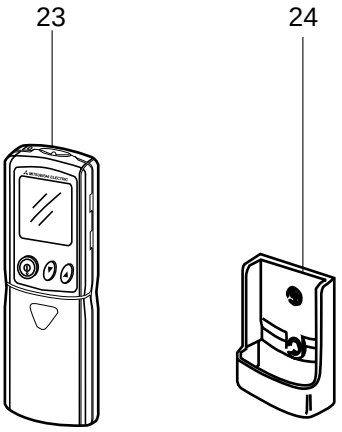
10	E02 891 620	INDOOR HEAT EXCHANGER		1	1		
	E02 893 620	INDOOR HEAT EXCHANGER				1	
11	E02 179 667	UNION (GAS)		1			ϕ12.7
	E02 138 666	UNION (GAS)			1	1	ϕ15.88
12	E02 151 667	UNION (LIQUID)		1	1		ϕ6.35
	E02 527 667	UNION (LIQUID)				1	ϕ9.52

MS-GA50VB -E1 (WH)
MS-GA60VB -E1 (WH)
MS-GA80VB -E1 (WH)

11-3. INDOOR UNIT FUNCTIONAL PARTS AND ELECTRICAL PARTS



11-4. ACCESSORY AND REMOTE CONTROLLER



11-3. INDOOR UNIT FUNCTIONAL PARTS AND ELECTRICAL PARTS

Part numbers that are circled are not shown in the illustration.

No.	Part No.	Part Name	Symbol in Wiring Diagram	Q'ty/unit MS-GA50 VB - E1 (WH)	Q'ty/unit MS-GA60 VB - E1 (WH)	Q'ty/unit MS-GA80 VB - E1 (WH)	Remarks
1	E02 527 302	LINE FLOW FAN		1	1	1	
2	E02 408 509	BEARING MOUNT		1	1	1	
3	E02 001 504	SLEEVE BEARING		1	1	1	
4	E02 408 702	DRAIN HOSE		1	1	1	
5	E02 527 235	NOZZLE (WH)		1	1	1	
6	E02 685 040	VANE UPPER (WH)		1	1	1	
7	E02 685 041	VANE LOWER (WH)		1	1	1	
8	E02 127 382	FUSE	F11	1	1	1	3.15A
9	E02 817 385	VARISTOR	NR11	1	1	1	
10	E02 527 034	VANE CRANK SET		1	1	1	
11	E02 817 300	INDOOR FAN MOTOR ASSEMBLY	MF	1	1		RC4V32 -□□ Including RUBBER MOUNT
	E02 527 300	INDOOR FAN MOTOR ASSEMBLY	MF			1	RC4V40 -□□ Including RUBBER MOUNT
12	E02 448 303	VANE MOTOR (VERTICAL)	MV2	2	2	2	RIGHT & LEFT
13	E02 408 303	VANE MOTOR (HORIZONTAL)	MV1	1	1	1	UP & DOWN
14	E02 817 333	MOTOR BAND		1	1		
	E02 527 333	MOTOR BAND				1	
15	E02 528 329	DISPLAY P.C. BOARD		1	1	1	
16	E02 527 468	RECEIVER P.C. BOARD		1	1	1	
17	E02 894 452	ELECTRONIC CONTROL P.C. BOARD		1			AUTO RESTART Including No.16
	E02 895 452	ELECTRONIC CONTROL P.C. BOARD			1		AUTO RESTART Including No.16
	E02 896 452	ELECTRONIC CONTROL P.C. BOARD				1	AUTO RESTART Including No.16
18	E02 527 308	ROOM TEMPERATURE THERMISTOR	RT11	1	1	1	
19	E02 817 375	TERMINAL BLOCK	TB	1	1		
	E02 819 375	TERMINAL BLOCK	TB			1	
20	E02 749 307	INDOOR COIL THERMISTOR	RT12	1	1		
	E02 527 307	INDOOR COIL THERMISTOR	RT12, RT13			1	
(21)	E02 528 034	VANE MOTOR SUPPORT SET(RIGHT)		1	1	1	
(22)	E02 529 034	VANE MOTOR SUPPORT SET(LEFT)		1	1	1	

11-4. ACCESSORY AND REMOTE CONTROLLER

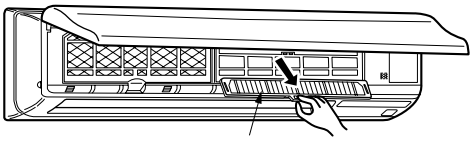
23	E02 527 426	REMOTE CONTROLLER		1	1	1	KM04B
24	E02 527 083	REMOTE CONTROLLER HOLDER		1	1	1	

12 OPTIONAL PARTS

AIR CLEANING FILTER

- AIR CLEANING FILTER removes fine dust of 0.01 micron from air by means of static electricity.
- Normal life of AIR CLEANING FILTER is 4 months. However, when it becomes dirty, replace it as soon as possible.
- Clogged AIR CLEANING FILTER may reduce the air conditioner capacity or cause frost on the air outlet.
- DO NOT reuse AIR CLEANING FILTER even if it is washed.
- DO NOT remove or attach AIR CLEANING FILTER during unit operation.

Model	Part No.
MS-GA50VB -E1 **MS-GA60VB -E1** **MS-GA80VB -E1**	**MAC-1700FT**



Air cleanig filter (White bellows type)

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